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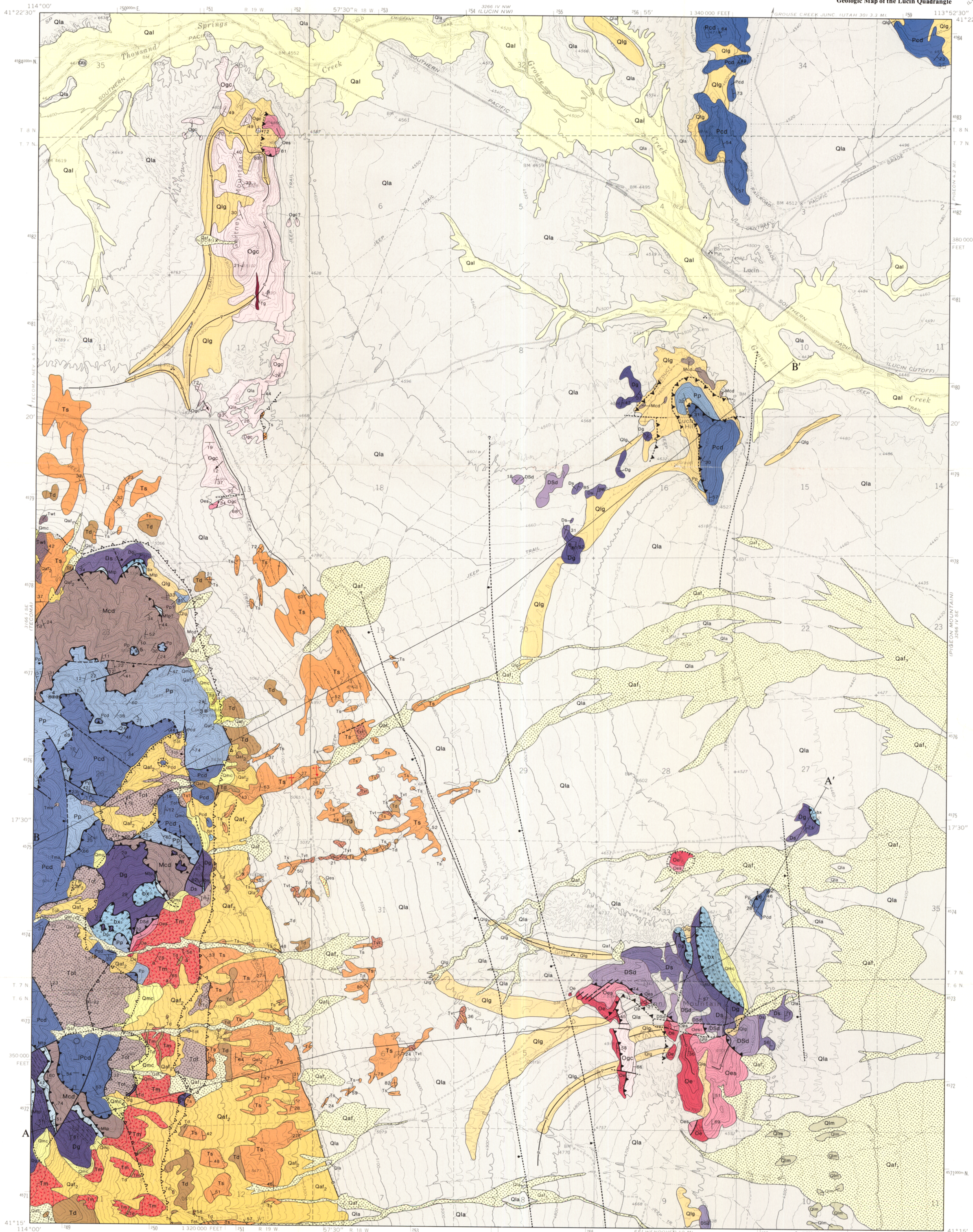
Plate 1
Utah Geological and Mineral Survey Map 78
Geologic Map of the Lucin Quadrangle



GEOLOGIC MAP OF THE LUCIN QUADRANGLE, BOX ELDER COUNTY, UTAH

by
David M. Miller
U.S. Geological Survey

1985

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Plate 2
Utah Geological and Mineral Survey Map 78
Geologic Map of the Lucin Quadrangle

CONTACT
Dotted where covered

HIGH-ANGLE FAULTS
Dashed where location inferred; dotted where covered

Normal Fault
Bar and ball on downthrown side; dip indicated

Strike-slip fault
Arrows show relative movement

LOW-ANGLE AND BEDDING-PLANE FAULTS
Dashed where location inferred;
dotted where covered; sawteeth on upper plate

Bedding-plane fault
Known or presumed to be pre-Oligocene in age

Bedding-plane or low-angle normal fault
Cutting Oligocene and(or) younger rocks

Gravity slide block
Tertiary or Quaternary age;
dashed where location inferred; dotted where covered

STRIKE AND DIP OF BEDDING
Inclined 36 · Vertical · Overturned 15

STRIKE AND DIP OF IGNEOUS FOLIATION
Inclined 19 · Vertical
Plunge of lineation 4 18 12

71 a
STRIKE AND DIP OF APLITE DIKE

TRACE OF AXIAL SURFACE OF FOLD
Arrows show direction of plunge; dotted where covered
Anticline · Syncline

⊙2
Location of Paleontological sample

B—B
Trace of Bonneville shoreline

P—P
Trace of Provo shoreline

Prospect · Adit · Quarry · Gravel

TABLE 1. *Paleontoiogical data for the Lucin quadrangle*

Map location	Field number	USGS collection number	Unit and faunal description	Fossil age	Date of report	Paleontologist	Location Latitude	Location Longitude
1	M81PR-127	28192	Chert and dolomite unit Cystodictyid or a closely similar bifoliate fistuliporid — 2 spec. *Dyscritella?* sp. — 3 spec. Rhabdomesids, indet. — 3 spec. *Rhombotrypella* sp. — 3 spec. *Timanodictya* sp. — 4 spec. The association of the bryozoans *Timanodictya* with *Dyscritella?* and *Rhombotrypella* in this sample indicates Permian age for these strata. *Timanodictya* is known only from rocks of Permian age.	Permian	12/21/81	O.L. Karklins	41°17′05″	113°54′01″
2	M82PR-05	D436-PC	Chert and dolomite unit *Neostreptognathodus Sulcoplicatus* (late Leonardian) (Youngquist, Hawley, and Miller) 1 Pa, *Stepanovites* sp. 1 Pb, 5 sc. This fauna is common to the upper third of the Grandeur Formation of McKelvey and the lower part of the Meade Peak Phosphatic Shale Member of the Phosphoria Formation CAI = 2.0.	late Early Permian	12/30/82	B.R. Wardlaw	41°17′08″	113°53′58″
3	M80PR-14	f14333	Pequop(?) Formation This sample contains *Schwagerina* sp. and a primitive *Parafusulina?* sp. and suggests latest Wolfcampian to early Leonardian age.	Early Permian	12/18/80	R.C. Douglass	41°18′12″	113°58′36″
4	M81PR-88 to 93	f14485 to f14490	Pequop(?) Formation These 6 samples from a traverse through the Pequop(?) all have the same fusulinids in them, some largely recrystallized. From the etched slices, it is difficult to assign any of them definitely to the Pequop. All have schwagerinids, but no evidence of *Parafusulina* sp. The schwagerinids present don't rule out Pequop age, however.	Early Permian	8/3/82	R.C. Douglass	41°18′17″	113°59′53″
5	S81PR-10	f14480	Pequop(?) Formation The fusulinid present is a schwagerinid that is close to Pequop forms but if it is actually Pequop age, it is very early. Not much of the Pequop should be found below it.	Early Permian	8/3/82	R.C. Douglass	41°18′32″	113°59′10″
	S81PR-10	28108-PC	Pequop(?) Formation *Tabulipora* sp., one specimen. This undescribed species of *Tabulipora* appears to be common in rocks of Late Pennsylvanian and Early Permian ages.	Late Pennsylvanian or Early Permian	10/19/81	O.L. Karklins	41°18′32″	113°59′10″
6	M81PR-114	10341-SD	Guilmette Formation Brachiopods from this collection confirm a Frasnian age. Most diagnostic is the spiriferoid *Tenticospirifer Utahensis* (Meek) which is represented by one excellent specimen and several fragmentary valves. This species has been reported from late Frasnian rocks in Utah, Montana, Wyoming and Nevada; a very similar species is also present in the Martin Limestone of Arizona and in late Frasnian strata of Iowa.	early Late Devonian	1/20/82	J.T. Dutro, Jr.	41°19′11″	113°55′35″
	M81PR-114	10341-SD	Guilmette Formation *Amphipora* sp. *Macgeea* sp. *Tabulophyllum* sp. *Macgeea* is known only from rock of Frasnian age in North America although it does occur in upper Middle Devonian rocks in some other areas. *Tabulophyllum* and *Amphipora* are common in the Frasnian but also occur in older rocks.	early Late Devonian	11/24/81	W.A. Oliver, Jr.	41°19′11″	113°55′35″

FORMATION	SYMBOL	LITHOLOGY	THICKNESS feet (meters)
Chert and dolomite	Pcd		980 (300)
Pequop(?) Formation	Pp		920 (280)
Chainman Shale and Diamond Peak Formation, undivided	Mcd		600 (185)
Tripon Pass Limestone	Mtp		80 (25)
Guilmette Formation	Dg		965 (295)
Simonson Dolomite	Ds		690 (210)
Thick-bedded dolomite	DSd		675 (205)
Ely Springs Dolomite	Oes		420 (130)
Eureka Quartzite	Oe		520 (160)
Garden City Formation	Ogc		1050 (320)

Low-angle fault

CORRELATION OF MAP UNITS

QUATERNARY
- Holocene: Qaf_1, Qes, Qal, Qlg, Qlm, Qla, Qmc
- Pleistocene: Qaf_2

TERTIARY
- Miocene: Td, Twt, Ts, Tvt
- Oligocene: Tot, Tma, Tm, Tg

AGE UNCERTAIN: bx

PERMIAN: Pcd, Pp

MISSISSIPPIAN: Mcd, Mtp

SILURIAN / DEVONIAN / ORDOVICIAN: Dg, Ds, DSd, Oes, Oe, Ogc

DESCRIPTION OF MAP UNITS

Qes — Eolian sand—*Brown and brownish-gray fine sand and silt.*

Qal — Alluvium—*Silt and sand in active streams and washes.*

Qmc — Colluvium and talus—*Talus and colluvium of sand and gravel.*

Qaf_1 — Younger alluvial fan deposits—*Fan deposits of cobble, gravel, sand, and silt.*

Qla — Undifferentiated lacustrine and alluvial deposits—*Soft, white, calcareous clay and lacustrine silt forming thin veneers over older alluvium and pediment surfaces.*

Qlm — Lacustrine Marl—*Unconsolidated brownish-white marl.*

Qlg — Lacustrine gravel—*Well-rounded and sorted cobble, gravel, and sand that form shoreline deposits of Lake Bonneville.*

Qaf_2 — Older alluvial fan deposits—*Poorly sorted boulder- to silt-sized alluvial deposits forming high terraces.*

Td — Diabase—*Dikes and sills of diabase and mafic rocks.*

Ts — Sedimentary rocks—*Lithified non-resistant lake deposits of conglomerate, sandstone, siltstone, and limestone. Dot-dash indicates marker units of pebble conglomerate containing clasts of lineated metaquartzite.*

Twt — Welded tuff—*Welded sanidine rhyolitic tuff and underlying black virtophyre.*

Tvt — Vitric tuff—*White to light-gray, thin- to thick-bedded vitric tuff without phenocrysts.*

Tot — Older tuff—*Interlayered vitrophyre, tuff breccia, and white, altered tuff.*

Tma — Altered igneous and sedimentary rocks.

Tm — Monzogranite of McGinty—*Coarsegrained, white to gray, porphyritic monzogranite to granodiorite.*

Tg — Granodiorite Dike—*Highly altered, brownweathered felsic dikes.*

bx — Silicified breccia—*Dense, resistant, darkbrown, brecciated jasperoid, silicified sandstone, altered carbonate rocks, and siliceous fracture and vug fillings.*

Pcd — Chert and dolomite—*Siliceous, light- and medium-gray, thin- to medium-bedded dolomite and quartz sandstone.*

Pp — Pequop(?) Formation—*Mostly laminated to thin-bedded, platy, charcoal-gray, silty limestone that commonly forms tan grassy slopes.*

Mcd — Chainman Shale and Diamond Peak Formation, undivided—*Dark-gray to black siliceous, slope-forming sandstone and brown-weathering, ledge-forming conglomerate.*

Mtp — Tripon Pass Limestone—*Dark-gray to black, regularly bedded, silty limestone with interbeded calcareous siltstone.*

Dg — Guilmette Formation—*Dark-gray to black, well-bedded, cliff-forming limestone; light gray to white-weathering, fossiliferous. Dot-dash line indicates quartz sandstone beds and sandy limestone near top.*

Ds — Simonson Dolomite—*Interlayered dark- to light-gray calcareous dolomite forming banded steep slopes.*

DSd — Thick-bedded dolomite—*Light- to medium-gray, poorly bedded to structureless dolomite.*

Oes — Ely Springs Dolomite—*Dark calcareous, cherty dolomite.*

Oe — Eureka Quartzite—*White and light-gray, vitreous, medium-grained orthoquartzite, well bedded.*

Ogc — Garden City Formation—*Thin-bedded and laminated blue-gray limestone, gray and brown silty limestone, and brown calcareous siltstone.*